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PRELIMINARY NOTE ON THE MORPHOLOGY OF GNETUM

W. P. THOMPSON

The writer has collected and examined abundant embryological material of several species of *Gnetum* in the hope of securing information concerning the affinities of the Gnetales, and of throwing light on the origin of the gametophytic conditions and endosperm of the Angiosperms. Some of the results of the study are enumerated below. The detailed information will be published shortly.

1. The pollen grains sometimes germinate well up in the so-called "style," the pollen tubes then growing down to the nucellus as in the Angiosperms. Usually, however, germination takes place on the tip of the nucellus.

2. In the male gametophyte no prothallial cells are produced. Distinct male cells are formed.

3. *Only free nuclei (never cells)* are formed in the embryo-sac before the pollen tube enters, though cells are formed before fertilization takes place.

4. *One or more eggs are definitely organized* just before the pollen tube enters, usually while it is pressed against the side of the sac.

5. Before fertilization takes place the female gametophyte becomes divided into a large number of multinucleate compartments. All the nuclei in each compartment then *unite to form a fusion nucleus*. Fertilization is delayed until the fusion nuclei are formed.

6. The endosperm is formed by the divisions of the fusion nuclei in the lowermost compartments.

7. Coenocytic pro-embryonal tubes are formed which grow down into the endosperm and branch freely.

The bearing of conclusions five and six on the morphology of the endosperm of Angiosperms is obvious. The whole study indicates a close relationship between *Gnetum* and the Angiosperms.

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